

CLAIMS

1. A method for providing a centralized user interface at an administrator terminal in a network for managing operations including encoding operations performed on media data by selected ones of a plurality of media servers, the process comprising the steps of:
- displaying a graphical user interface at the administrator terminal, said interface including a plurality of interface components enabling a user to select between a manual encoding mode for manually starting and stopping manual encoding processes to be performed by selected ones of the servers, and a scheduled encoding mode for defining schedules for scheduled encoding processes to be performed by selected ones of the servers;
 - receiving information input by the user specifying a selected one of the media servers, a selected mode of operation, and an encoding operation;
 - generating commands and associated parameters based on the input information for instructing the selected server to execute the specified encoding operation in accordance with the selected mode of operation; and
 - transmitting said commands and said associated parameters to said selected server.
2. A method as recited in claim 1 wherein each of the media servers is communicatively coupled with at least one corresponding multimedia device capable of generating media data, and wherein each of the media servers is operative to activate a selected one of said multimedia devices, and also operative to encode the media data generated by said selected multimedia device.
3. A method as recited in claim 2 wherein the encoding operations include a preview operation, and wherein the administrator terminal also includes a processing unit, a browser

5 executing said applet over the processing unit of the administrator terminal, said
6 graphical user interface being displayed within a browser window generated by said browser
7 application on the display unit.

1 6. A process as recited in claim 2 wherein if said scheduled encoding mode is selected, said
2 steps of displaying a graphical user interface, receiving information, and generating commands
3 further comprise the steps of:

4 displaying scheduling interface components enabling the user to select a start time and a
5 start date for the scheduled encoding operation;

6 receiving information input by the user indicating a selected start time and a selected start
7 date for initiating said scheduled encoding operation; and

8 generating encoding commands and associated encoding parameters for instructing said
9 selected server to encode media data received from said selected multimedia device at said
10 selected start time on said selected start date.

1 7. A method as recited in claim 6 wherein said steps of displaying said scheduling interface
2 components, and receiving information further include the steps of:

3 displaying duration interface components enabling the user to select from time duration
4 specification options including,

5 selecting a scheduled stop date and stop time for terminating said encoding
6 operation, and

7 selecting a time duration for which said encoding operation is to continue
8 following said selected start time on said selected start date; and

9 receiving information input by the user indicative of a selected time duration
10 specification option.

1 8. A method as recited in claim 1 wherein each of the servers is operative to access at least
2 one corresponding memory device for storing media data, and wherein each of the servers is
3 further operative to record selected portions of encoded media data that are encoded during said
4 encoding operations, and wherein said steps of displaying a graphical user interface, receiving
5 information, and generating commands and parameters further comprise the steps of:

6 displaying a storage selection interface component enabling the user to select a storage
7 location by browsing a list of available storage locations including predetermined mapped ones
8 of the memory devices associated with said selected server;

9 receiving information input by the user indicating a selected storage location; and
10 generating record commands and associated record parameters for instructing said
11 selected server to store the selected portion of encoded media data at said selected storage
12 location.

1 9. A method as recited in claim 8 wherein said steps of displaying a graphical user interface,
2 and receiving information further comprise the steps of:

3 displaying a name selection interface component enabling the user specify an asset name
4 for said encoded portion of media data to be stored at said selected storage location; and

5 receiving information input by the user indicating a specified asset name;

6 wherein said record commands and associated record parameters provide for instructing
7 said selected encoder media server to store said encoded portion of media data at said selected
8 storage location under said specified asset name.

1 10. A method as recited in claim 9 wherein said steps of displaying a graphical user interface,
2 and receiving information further comprise the steps of:

3 displaying an overwriting option selection interface component enabling the user to select
4 from a plurality of overwriting options for specifying attributes of the recording operation if a
5 file having said specified asset name exists at said selected storage location at the time of
6 execution of said recording operation, said overwriting options including,

7 a first option for specifying that the user is to be prompted if a file having said
8 specified asset name exists at said selected storage location at the time of
9 execution of said recording operation,

10 a second option for specifying that any file having said specified asset name,
11 existing at said selected storage location at the time of execution of said recording
12 operation, is to be overwritten with said encoded portion of media data, and

13 a third option for specifying that any file having said specified asset name,
14 existing at said selected storage location at the time of execution of said recording
15 operation, is to be appended with said encoded portion of media data.

1 11. A method as recited in claim 1 wherein the network further includes a plurality of end
2 user terminals communicatively coupled to the administrator terminal and to the servers, each of
3 the servers being further operative to stream media data to selected ones of the end user
4 terminals, the operations further including streaming operations, and wherein said steps of
5 displaying a graphical user interface, receiving information, and generating commands and
6 associated parameters further comprise the steps of:

7 displaying streaming interface components enabling the user to define a streaming
8 operation for streaming the encoded media data to selected ones of the end user terminals

9 receiving streaming operation information input by the user; and
10 generating streaming commands and associated streaming parameters based on said
11 streaming operation information, said streaming commands and associated streaming parameters
12 for instructing said selected server to execute a streaming operation for streaming the encoded
13 portion of media data from said selected encoder media server to corresponding selected ones of
14 the end user terminals via the network.

1 12. A method as recited in claim 11 wherein said steps of displaying streaming interface
2 components, and receiving information further comprise the steps of:
3 displaying streaming destination selection interface components enabling the user to
4 select at least one of the end user terminals as a destination for streaming said encoded portion of
5 media data; and
6 receiving information input by the user indicative of at least one selected end user;
7 wherein said commands and associated parameters further include a streaming command
8 and associated streaming parameters for instructing said selected encoder media server to stream
9 said encoded portion of media data to said selected end users.

1 13. A method as recited in claim 11 wherein the network further includes a plurality of end
2 user terminals communicatively coupled to the administrator terminal and to the servers, each of
3 the servers being further operative to stream media data to selected ones of the end user
4 terminals, the operations further including streaming operations, and wherein the operations
5 further include playback operations for streaming the stored portion of encoded media data from
6 said selected server to corresponding selected ones of the end user terminals in accordance with a
7 user defined playback schedule.

14. A method as recited in claim 13 wherein said steps of displaying a graphical user interface, and receiving information further comprise the steps of:

displaying playback destination selection interface components enabling the user to select at least one of the end user terminals as a destination for streaming said encoded portion of media data in accordance with a user defined playback schedule;

displaying play-back schedule interface components enabling the user define a play-back schedule; and

receiving information input by the user indicative of a user defined play-back schedule;

wherein said commands and associated parameters further include a play-back command and associated play-back parameters for instructing said selected encoder media server to stream said stored portion of encoded media data to said selected end users via the network in accordance with said user defined play-back schedule.

15. A method as recited in claim 14 wherein said play-back schedule interface components comprise:

a first group of components enabling the user to select a start time and a start date for said play-back schedule; and

a second group of components enabling the user to select from a plurality of options for specifying a play-back schedule duration.

16. A method as recited in claim 13 wherein said operations further include notification operations associated with corresponding ones of the playback operations, said notification operations for sending notification messages to selected network addresses associated with selected ones of the end user terminals and the administrator terminal.

1 17. A method as recited in claim 16 wherein the notification operations include determining
2 success or failure of the streaming specified by the corresponding playback operation, and
3 wherein said steps of displaying a graphical user interface, and receiving information further
4 comprise the steps of:

5 displaying notification circumstance selection interface components enabling the user to
6 select from the notification circumstance options of,

7 a first option of sending a notification message to selected network addresses if
8 the streaming specified by the corresponding playback operation fails,

9 a second option of sending a notification message to selected network addresses if
10 the streaming specified by the corresponding playback operation is successful,

11 and

12 a third option of sending a notification message to selected network addresses if
13 the streaming specified by the corresponding playback operation fails of is

14 successful; and

15 receiving information input by the user indicating a selected notification circumstance
16 option;

17 wherein said commands and associated parameters further include a notification
18 command and associated notification parameters for instructing said selected encoder media
19 server to send notification messages to the selected network addresses in accordance with said
20 selected notification circumstance option.

1 18. A method as recited in claim 2 wherein the administrator terminal also includes a
2 processing unit, a browser application executed by the processing unit, and a display unit, and
3 wherein a selected one of the multimedia devices is a video camera which generates media data

including video data, and wherein if said manual encoding mode is selected, said process further comprises the steps of:

generating manual mode initiation commands and associated parameters for instructing the selected server to initiate a manual encoding operation;

transmitting said manual mode initiation commands and associated parameters to said selected server via the network;

receiving video data from said selected server via the network;

displaying said video data in a browser window on the display unit of the administrator terminal, and also displaying manual encoding mode control interface components enabling the user to select from manual control options including a start option for starting and resuming the manual encoding process, and a stop option for stopping the manual encoding process;

receiving information input by the user indicating a selected one of the manual control options;

if said start option is selected, generating a start command for instructing said selected media server to start the manual encoding process, and transmitting said start command to said selected server; and

if said stop option is selected, generating a stop command for instructing said selected media server to stop the manual encoding process, and transmitting said stop command to said selected server.

19. A method for providing a centralized user interface at an administrator terminal in a network for remotely controlling encoding operations performed on media data by selected ones of a plurality of media servers, the process comprising the steps of:

1 21. A method as recited in claim 19 wherein the administrator terminal includes a processing
2 unit, and a viewing application executed by the processing unit, and wherein said step of
3 displaying said encoded media data at the administrator terminal includes displaying said
4 encoded media data in a window generated by said viewing application.

1 22. A machine readable storage device having stored therein encoding instructions for
2 executing a process of providing a centralized user interface at an administrator terminal in a
3 network for managing operations including encoding operations performed on media data by
4 selected ones of a plurality of media servers, the process comprising the steps of:

5 displaying a graphical user interface at the administrator terminal, said interface including
6 a plurality of interface components enabling a user to select between a manual encoding mode
7 for manually starting and stopping manual encoding processes to be performed by selected ones
8 of the servers, and a scheduled encoding mode for defining schedules for scheduled encoding
9 processes to be performed by selected ones of the servers;

10 receiving information input by the user specifying a selected one of the media servers, a
11 selected mode of operation, and an encoding operation;

12 generating commands and associated parameters based on the input information for
13 instructing the selected server to execute the specified encoding operation in accordance with the
14 selected mode of operation; and

15 transmitting said commands and said associated parameters to said selected server.

1 23. A machine readable storage device as recited in claim 22 wherein each of the media
2 servers is communicatively coupled with at least one corresponding multimedia device capable
3 of generating media data, and wherein each of the media servers is operative to activate a

4 selected one of said multimedia devices, and also operative to encode the media data generated
5 by said selected multimedia device.

1 24. A machine readable storage device as recited in claim 23 wherein the encoding
2 operations include a preview operation, and wherein the administrator terminal also includes a
3 processing unit, a browser application executed by the processing unit, and a display unit, and
4 wherein the selected multimedia device is a video camera which generates media data including
5 video data, and wherein said steps of displaying, receiving, generating, and transmitting further
6 comprise:

7 displaying a preview select interface component enabling the user to select a preview
8 option for executing a preview operation including displaying video data generated by a selected
9 video camera coupled with said selected server;

10 receiving information input by the user indicating that said preview option has been
11 selected;

12 generating preview commands and associated preview parameters for instructing said
13 selected server to execute said preview operation;

14 transmitting said preview commands and said associated preview parameters to said
15 selected server;

16 receiving preview video data from said selected server; and

17 displaying said preview video data in a browser window on the display unit of the
18 administrator terminal.

1 25. A machine readable storage device as recited in claim 22 wherein the network is an
2 internet protocol (IP) network.

1 26. A machine readable storage device as recited in claim 22 wherein the administrator
2 terminal also includes a processing unit, a browser application executed by the processing unit,
3 and a display unit, and wherein said process is initiated by performing the steps of:
4 transmitting an applet to the administrator terminal via the network; and
5 executing said applet over the processing unit of the administrator terminal, said
6 graphical user interface being displayed within a browser window generated by said browser
7 application on the display unit.

1 27. A machine readable storage device as recited in claim 23 wherein if said scheduled
2 encoding mode is selected, said steps of displaying a graphical user interface, receiving
3 information, and generating commands further comprise the steps of:
4 displaying scheduling interface components enabling the user to select a start time and a
5 start date for the scheduled encoding operation;
6 receiving information input by the user indicating a selected start time and a selected start
7 date for initiating said scheduled encoding operation; and
8 generating encoding commands and associated encoding parameters for instructing said
9 selected server to encode media data received from said selected multimedia device at said
10 selected start time on said selected start date.

1 28. A machine readable storage device as recited in claim 27 wherein said steps of displaying
2 said scheduling interface components, and receiving information further include the steps of:
3 displaying duration interface components enabling the user to select from time duration
4 specification options including,

5 selecting a scheduled stop date and stop time for terminating said encoding
6 operation, and
7 selecting a time duration for which said encoding operation is to continue
8 following said selected start time on said selected start date; and
9 receiving information input by the user indicative of a selected time duration
10 specification option.

1 29. A machine readable storage device as recited in claim 22 wherein each of the servers is
2 operative to access at least one corresponding memory device for storing media data, and
3 wherein each of the servers is further operative to record selected portions of encoded media data
4 that are encoded during said encoding operations, and wherein said steps of displaying a
5 graphical user interface, receiving information, and generating commands and parameters further
6 comprise the steps of:

7 displaying a storage selection interface component enabling the user to select a storage
8 location by browsing a list of available storage locations including predetermined mapped ones
9 of the memory devices associated with said selected server;

10 receiving information input by the user indicating a selected storage location; and
11 generating record commands and associated record parameters for instructing said
12 selected server to store the selected portion of encoded media data at said selected storage
13 location.

1 30. A machine readable storage device as recited in claim 29 wherein said steps of displaying
2 a graphical user interface, and receiving information further comprise the steps of:

3 displaying a name selection interface component enabling the user specify an asset name
4 for said encoded portion of media data to be stored at said selected storage location; and
5 receiving information input by the user indicating a specified asset name;
6 wherein said record commands and associated record parameters provide for instructing
7 said selected encoder media server to store said encoded portion of media data at said selected
8 storage location under said specified asset name.

1 31. A machine readable storage device as recited in claim 30 wherein said steps of displaying
2 a graphical user interface, and receiving information further comprise the steps of:

3 displaying an overwriting option selection interface component enabling the user to select
4 from a plurality of overwriting options for specifying attributes of the recording operation if a
5 file having said specified asset name exists at said selected storage location at the time of
6 execution of said recording operation, said overwriting options including,

7 a first option for specifying that the user is to be prompted if a file having said
8 specified asset name exists at said selected storage location at the time of
9 execution of said recording operation,

10 a second option for specifying that any file having said specified asset name,
11 existing at said selected storage location at the time of execution of said recording
12 operation, is to be overwritten with said encoded portion of media data, and

13 a third option for specifying that any file having said specified asset name,
14 existing at said selected storage location at the time of execution of said recording
15 operation, is to be appended with said encoded portion of media data.

1 32. A machine readable storage device as recited in claim 22 wherein the network further
2 includes a plurality of end user terminals communicatively coupled to the administrator terminal
3 and to the servers, each of the servers being further operative to stream media data to selected
4 ones of the end user terminals, the operations further including streaming operations, and
5 wherein said steps of displaying a graphical user interface, receiving information, and
6 generating commands and associated parameters further comprise the steps of:

7 displaying streaming interface components enabling the user to define a streaming
8 operation for streaming the encoded media data to selected ones of the end user terminals
9 receiving streaming operation information input by the user; and
10 generating streaming commands and associated streaming parameters based on said
11 streaming operation information, said streaming commands and associated streaming parameters
12 for instructing said selected server to execute a streaming operation for streaming the encoded
13 portion of media data from said selected encoder media server to corresponding selected ones of
14 the end user terminals via the network.

1 33. A machine readable storage device as recited in claim 32 wherein said steps of displaying
2 streaming interface components, and receiving information further comprise the steps of:

3 displaying streaming destination selection interface components enabling the user to
4 select at least one of the end user terminals as a destination for streaming said encoded portion of
5 media data; and

6 receiving information input by the user indicative of at least one selected end user;

7 wherein said commands and associated parameters further include a streaming command
8 and associated streaming parameters for instructing said selected encoder media server to stream
9 said encoded portion of media data to said selected end users.

1 34. A machine readable storage device as recited in claim 29 wherein the network further
2 includes a plurality of end user terminals communicatively coupled to the administrator terminal
3 and to the servers, each of the servers being further operative to stream media data to selected
4 ones of the end user terminals, the operations further including streaming operations, and
5 wherein the operations further include playback operations for streaming the stored portion of
6 encoded media data from said selected media server to corresponding selected ones of the end
7 user terminals in accordance with a user defined playback schedule.

1 35. A server operative to provide an applet to a client via a network, the applet including
2 encoding instructions for executing a process of providing a centralized user interface at the
3 client in a network for managing operations including encoding operations performed on media
4 data by selected ones of a plurality of media servers, the process comprising the steps of:

5 displaying a graphical user interface at the client, said interface including a plurality of
6 interface components enabling a user to select between a manual encoding mode for manually
7 starting and stopping manual encoding processes to be performed by selected ones of the media
8 servers, and a scheduled encoding mode for defining schedules for scheduled encoding processes
9 to be performed by selected ones of the media servers;

10 receiving information input by the user specifying a selected one of the media servers, a
11 selected mode of operation, and an encoding operation;

12 generating commands and associated parameters based on the input information for
13 instructing the selected media server to execute the specified encoding operation in accordance
14 with the selected mode of operation; and

15 transmitting said commands and said associated parameters to said selected media server.

1 36. A server recited in claim 35 wherein each of the media servers is communicatively
2 coupled with at least one corresponding multimedia device capable of generating media data, and
3 wherein each of the media servers is operative to activate a selected one of said multimedia
4 devices, and also operative to encode the media/data generated by said selected multimedia
5 device.

1 37. A server recited in claim 36 wherein the encoding operations include a preview
2 operation, and wherein the client also includes a processing unit, a browser application executed
3 by the processing unit, and a display unit, and wherein the selected multimedia device is a video
4 camera which generates media data including video data, and wherein said steps of displaying,
5 receiving, generating, and transmitting further comprise:

6 displaying a preview select interface component enabling the user to select a preview
7 option for executing a preview operation including displaying video data generated by a selected
8 video camera coupled with said selected media server;

9 receiving information input by the user indicating that said preview option has been
10 selected;

11 generating preview commands and associated preview parameters for instructing said
12 selected media server to execute said preview operation;

13 transmitting said preview commands and said associated preview parameters to said
14 selected media server;

15 receiving preview video data from said selected media server; and

16 displaying said preview video data in a browser window on the display unit of the client.

1 38. A server recited in claim 35 wherein the network is an internet protocol (IP) network.

1 39. A server recited in claim 36 wherein if said scheduled encoding mode is selected, said
2 steps of displaying a graphical user interface, receiving information, and generating commands
3 further comprise the steps of:

4 displaying scheduling interface components enabling the user to select a start time and a
5 start date for the scheduled encoding operation;

6 receiving information input by the user indicating a selected start time and a selected start
7 date for initiating said scheduled encoding operation; and

8 generating encoding commands and associated encoding parameters for instructing said
9 selected media server to encode media data received from said selected multimedia device at said
10 selected start time on said selected start date.

1 40. A server recited in claim 39 wherein said steps of displaying said scheduling interface
2 components, and receiving information further include the steps of:

3 displaying duration interface components enabling the user to select from time duration
4 specification options including,

5 selecting a scheduled stop date and stop time for terminating said encoding
6 operation, and

7 selecting a time duration for which said encoding operation is to continue

8 following said selected start time on said selected start date; and

9 receiving information input by the user indicative of a selected time duration
10 specification option.

1 41. A server recited in claim 35 wherein each of the media servers is operative to access at
2 least one corresponding memory device for storing media data, and wherein each of the media

3 servers is further operative to record selected portions of encoded media data that are encoded
4 during said encoding operations, and wherein said steps of displaying a graphical user interface,
5 receiving information, and generating commands and parameters further comprise the steps of:
6 displaying a storage selection interface component enabling the user to select a storage
7 location by browsing a list of available storage locations including predetermined mapped ones
8 of the memory devices associated with said selected media server;
9 receiving information input by the user indicating a selected storage location; and
10 generating record commands and associated record parameters for instructing said
11 selected media server to store the selected portion of encoded media data at said selected storage
12 location.

1 42. A server recited in claim 41 wherein said steps of displaying a graphical user interface,
2 and receiving information further comprise the steps of:
3 displaying a name selection interface component enabling the user specify an asset name
4 for said encoded portion of media data to be stored at said selected storage location; and
5 receiving information input by the user indicating a specified asset name;
6 wherein said record commands and associated record parameters provide for instructing
7 said selected encoder media server to store said encoded portion of media data at said selected
8 storage location under said specified asset name.

1 43. A server recited in claim 42 wherein said steps of displaying a graphical user interface,
2 and receiving information further comprise the steps of:
3 displaying an overwriting option selection interface component enabling the user to select
4 from a plurality of overwriting options for specifying attributes of the recording operation if a

5 file having said specified asset name exists at said selected storage location at the time of
6 execution of said recording operation, said overwriting options including,
7 a first option for specifying that the user is to be prompted if a file having said
8 specified asset name exists at said selected storage location at the time of
9 execution of said recording operation,
10 a second option for specifying that any file having said specified asset name,
11 existing at said selected storage location at the time of execution of said recording
12 operation, is to be overwritten with said encoded portion of media data, and
13 a third option for specifying that any file having said specified asset name,
14 existing at said selected storage location at the time of execution of said recording
15 operation, is to be appended with said encoded portion of media data.

1 44. A server recited in claim 35 wherein the network further includes a plurality of end user
2 terminals communicatively coupled to the client and to the media servers, each of the media
3 servers being further operative to stream media data to selected ones of the end user terminals,
4 the operations further including streaming operations, and wherein said steps of displaying a
5 graphical user interface, receiving information, and generating commands and associated
6 parameters further comprise the steps of:

7 displaying streaming interface components enabling the user to define a streaming
8 operation for streaming the encoded media data to selected ones of the end user terminals
9 receiving streaming operation information input by the user; and
10 generating streaming commands and associated streaming parameters based on said
11 streaming operation information, said streaming commands and associated streaming parameters
12 for instructing said selected media server to execute a streaming operation for streaming the

13 encoded portion of media data from said selected encoder media server to corresponding selected
14 ones of the end user terminals via the network.

1 45. A server recited in claim 44 wherein the network further includes a plurality of end user
2 terminals communicatively coupled to the client and to the media servers, each of the media
3 servers being further operative to stream media data to selected ones of the end user terminals,
4 the operations further including streaming operations, and wherein the operations further include
5 playback operations for streaming the stored portion of encoded media data from said selected
6 media server to corresponding selected ones of the end user terminals in accordance with a user
7 defined playback schedule.

1 46. A server recited in claim 45 wherein said steps of displaying a graphical user interface,
2 and receiving information further comprise the steps of:

3 displaying playback destination selection interface components enabling the user to select
4 at least one of the end user terminals as a destination for streaming said encoded portion of
5 media data in accordance with a user defined playback schedule;

6 displaying play-back schedule interface components enabling the user define a play-back
7 schedule; and

8 receiving information input by the user indicative of a user defined play-back schedule;

9 wherein said commands and associated parameters further include a play-back command
10 and associated play-back parameters for instructing said selected encoder media server to stream
11 said stored portion of encoded media data to said selected end users via the network in
12 accordance with said user defined play-back schedule.

12 a third option of sending a notification message to selected network addresses if
13 the streaming specified by the corresponding playback operation fails of is
14 successful; and
15 receiving information input by the user indicating a selected notification circumstance
16 option;
17 wherein said commands and associated parameters further include a notification
18 command and associated notification parameters for instructing said selected encoder media
19 server to send notification messages to the selected network addresses in accordance with said
20 selected notification circumstance option.

1 50. A server recited in claim 36 wherein the client also includes a processing unit, a browser
2 application executed by the processing unit, and a display unit, and wherein a selected one of the
3 multimedia devices is a video camera which generates media data including video data, and
4 wherein if said manual encoding mode is selected, said process further comprises the steps of:
5 generating manual mode initiation commands and associated parameters for instructing
6 the selected media server to initiate a manual encoding operation;
7 transmitting said manual mode initiation commands and associated parameters to said
8 selected media server via the network;
9 receiving video data from said selected media server via the network;
10 displaying said video data in a browser window on the display unit of the client, and also
11 displaying manual encoding mode control interface components enabling the user to select from
12 manual control options including a start option for starting and resuming the manual encoding
13 process, and a stop option for stopping the manual encoding process;

14 receiving information input by the user indicating a selected one of the manual control
15 options;

19 if said stop option is selected, generating a stop command for instructing said selected
20 media server to stop the manual encoding process, and transmitting said stop command to said
21 selected media server.